APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,810	07/24/2001	Chung-Yen Lu	JLINP064	7168

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MARTINE PENILLA & GENCARELLA, LLP
710 LAKEWAY DRIVE
SUITE 200
SUNNYVALE, CA 94085

EXAMINER
LEE, TOMMY D

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *4,6 and 7* is/are allowed.

6)☒ Claim(s) *1,2 and 5* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Priority

1.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   Claims 2 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

The value "n" (i = (x+C) modulo n; j = (y+C) modulo n) is undefined in claims 2

and 5. One cannot determine array index values "i" and "j" if "n" is not defined.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public
> use or on sale in this country, more than one year prior to the date of application for patent in the United
> States.

5.   Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent

4,920,501 (Sullivan et al.).

Sullivan et al. disclose an apparatus for dithering pixel data, comprising: a

dithering value generator for outputting a dither reference value in response to an N-bits

pixel data and a pixel address (x, y) thereof (8-bit density level of a pixel employed to

select one of 256 halftone dot patterns, and 5 least significant bits of the x and y pixel address employed to modularly address the selected halftone dot pattern (column 6, lines 29-48)); and a dithering unit for generating an M-bits pixel data in response to the dither reference value and the N-bits pixel data (halftone bit pattern produced (column 6, lines 43-48)); wherein the value N is greater than the value M (N = 8 bits (column 6, lines 40-43); M = 1 bit (column 6, lines 43-48)).

6.   Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,822,451 (Spaulding et al.).

Spaulding et al. disclose an apparatus for dithering pixel data, comprising: a dithering value generator for outputting a dither reference value in response to an N-bits pixel data and a pixel address (x, y) thereof (input pixel values used to select optimized halftone patterns for each color, and modulo operators used to determine indices used to address the selected halftone patterns (column 12, lines 5-16)); and a dithering unit for generating an M-bits pixel data in response to the dither reference value and the N-bits pixel data (output pixel values determined for each color channel (column 12, lines 12-16)); wherein the value N is greater than the value M (method disclosed at column 12 similar to prior art method disclosed at column 1, beginning at line 51, where there are k dither bitmaps corresponding to k input levels (column 1, lines 52-54), and where the output pixel value is either "on" or "off" (column 1, lines 39-42)).

Allowable Subject Matter

7.   Claims 4, 6 and 7 are allowed.

8.   Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9.   Claims 2 and 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10.   The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest a dither value generator including "an array index generator for generating an array index (i, j) in response to the N-bits pixel data and the pixel address (x, y) as follows: i = (x+C) modulo n; j = (y+C) modulo n, wherein C denotes the red, green or blue color value of the pixel to be dithered," as recited in claim 2; or a dithering unit including "a truncating unit for generating the M-bits pixel data by truncating the (N-M) least significant bits of the N-bits pixel data; a comparing unit for outputting a comparison signal by comparing the (N-M) least significant bits of the N-bits pixel data with the dither reference value; an adder for adding the M-bits pixel data to the comparison signal, and outputting a 'sum' signal and an 'overflow' signal; and a clamping unit for performing a clamping process on the 'sum' signal in response to the 'overflow' signal, and outputting the M-bits pixel data," as recited in claim 3, or an apparatus for inversely dithering pixel data, including "a dither value generator for generating a (N-M) bits dither reference value in response to a dithered M-bits pixel data and a pixel address (x, y)," as recited in claim 4.

11.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. The following references disclose different methods of inverse

dithering, or other methods of reconstructing a continuous-tone image from a halftone

image. None of the references appear to provide for the generation of an (N-M)-bit

dither reference value responsive to dithered M-bit pixel data and a pixel address.

U.S. Patent 6,222,945 (Cheung et al.)

U.S. Patent 5,506,699 (Wong)

U.S. Patent 5,339,170 (Fan)

U.S. Patent 5,333,064 (Seidner et al.)

U.S. Patent 5,268,771 (Murakami et al.)

U.S. Patent 5,027,078 (Fan)

U.S. Patent 4,758,897 (Hiratsuka et al.)

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Thomas D. Lee whose telephone number is (703) 305-

4870. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternate

Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David K. Moore can be reached on (703) 308-7452. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Thomas D. Lee
Primary Examiner
Art Unit 2624

tdl
February 18, 2005